

Sub-Sampling (2006SEDAR12)

Due to a substantial increase of port agent otolith sampling commencing in 2002, red grouper otoliths collected in 2002-2005 from commercial long-line intercepts were sub-sampled prior to estimating age. Records ($n = 1,000$) from each year were randomly sub-sampled based on the percentage of commercial long-line landings by NMFS grids. Landings were obtained from NMFS logbook 2001-2004 (S. Turner, SEFSC Miami). Red grouper otoliths collected in 2002-2005 from commercial hand-line, recreational, scientific survey, and Cooperative Research Projects were not sub-sampled; age was estimated for all samples.

Sub-sampling (red grouper and gag update assessment 2009)

Due to an increase in otolith sampling that has occurred in the commercial hand-line and long-line sectors, records (minimum $n = 500$) from each year and gear were randomly sub-sampled based on the percentage of commercial landings by National Marine Fisheries Service (NMFS) Shrimp Grids. Landings were obtained from NMFS logbook 2003-2007 (S. Turner, SEFSC Miami). All otoliths collected from the recreational sector, scientific surveys, observer programs and cooperative research projects were aged, if records were available. These sources were not sub-sampled as they are typically far fewer in number. This is the same sub-sampling process as used in SEDAR's 10 and 12.

See SEDAR documents:

2009. Lombardi, L., G. Fitzhugh, C. Palmer, B. Barnett, L. Goetz, and C. Fioramonti. Summary of gag and red grouper age data from the northeastern Gulf of Mexico for SEDAR (10/12) update: 2006-2008. NMFS/Southeast Fisheries Science Center, Panama City Laboratory Contribution 09-06.

2006. Lombardi-Carlson, L., Chris Palmer, Chris Gardner and Bob Farsky. Temporal and spatial trends in red grouper (*Epinephelus morio*) age and growth from the northeastern Gulf of Mexico: 1979-2005. SEDAR 12-DW-03. St. Petersburg, FL. Panama City Laboratory Contribution 2006-09.